AMERICAN ELECTRO-PLATERS SOCIETY

(An Educational Society)

Chartered 1909

MONTHLY REVIEW

AUGUST, 1916

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May the wing of friendship never moult a feather.—Dick Swiveller.

MONTHLY REVIEW

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Vol. 3 AUGUST No. 8

EDITORIALS

THE TRADE JOURNAL AND THE A. E. S.

By H. H. Williams.

In reply to "A Suggestion to Our Friends in the A. E. S.," as published in one of the trade journals, I feel it my duty to abide by and to uphold the constitution of the A. E. S., which was originally adopted after much careful consideration of the foremost and most intelligent members of our society, and has been revised at each annual convention, showing the desire to improve and meet new conditions; however Article X of our constitution, referring to our publications, has only been amended to make a Monthly instead of a Quarterly Review, and the bearing of the expense by the Supreme Society. It is evident then that the best indorsement the other sections of said Article X can have, is the fact that no amendment to them has been offered.

Our new constitution is now in the hands of the printer, but having this question before us, I will write sections covering point at issue.

Article X, Sec. 1. A Monthly Review shall be published which shall contain papers read before conventions and Branch Societies and all information that may be valuable to the members of the Society.

Sec. 2. The Monthly Review must be copyrighted and the copies of each issue shall be consecutively numbered and no member of any Branch Society must permit said publication to be used by any one not entitled to the information therein.

Sec. 3. Papers containing information of such a nature that the publication of them in other journals would be of benefit to the Society, or would assist in any scientific investigation of the electroplating industry, may be released by the consent of two-thirds of the members of the Executive Board.

Sec. 4. Scientific societies, or members of scientific societies, are privileged to abstract from any of the papers printed in the publications of this Society, provided that the abstracts are used in connection with research or similar work.

Sec. 5. An exchange of publications with scientific societies shall be maintained under the direction of the Executive Board.

We believe this covers a wide field under the educational viewpoint and yet it is true it does not reach all electro-platers or interested parties, but that is not the fault of our Society or the trade

journals either, for our publication is for every one who is eligible for membership in the A. E. S. and it is up to them to take advantage of the opportunity, so why should we commercialize the work of our society for the benefit of the others. It is the Monthly Review that is the connecting link of our Society, and of what value would it be if all our papers were turned over as *suggested*. What compensation or high mark of esteem (other than perhaps a few paltry dollars), would there be for those who have labored diligently to present papers for us if such public use was made of them. It is true that some who contribute papers have requested, not insisted, that they be published in the trade journals, and others have been sold to them and afterward read before some society, but these are usually papers advocating the use of certain materials and are of commercial value, having been worked out probably under heavy expense by some manufacturer and which at the same time contains valuable information to us.

It is not true that any of the valuable papers read before the convention will not be published for six months or more. Our editor will be on the outlook for more material long before that.

It is a matter of great pride to the A. E. S. that the papers presented at Cleveland were so valuable as to bring out this "Suggestion" from such an able man as the writer of the article in question and we appreciate the usefulness of the trade journal to us. Our Monthly Review will not and cannot take the place of it, every electro-plater needs and should subscribe to them all.

It is true that our Society needs publicity and the trade journals have been liberal in this regard and we still hope that through their columns that many may be brought to see the value of the A. E. S., but to release all our papers would be unwise.

WANTED—AN OPTIMIST.

The world needs the man who can sing while at work,
One who preaches the Gospel of Cheer;
Who lightens Life's burdens with many a song,
A sworn foe of frown, scowl and tear;
Who can whistle a tune where the going is rough
And meet reverses in life with a grin;
Whose laugh flifings the radiance of sunshine about,
While his face speaks contentment within.

Ah, give us a man who can toil with a smile,
And find joy in his power to create;
Who contentedly travels the highways of Life
To the goal where the laurels await.
Life grants no rewards to the faint-hearted man;
Passes by those who grumble and shirk.
Her garlands of victory, her paeans of praise
Go to him who can sing while at work.

—Roland A. Beens.

FOURTH ANNUAL CONVENTION
OF THE
AMERICAN ELECTRO-PLATERS' SOCIETY
HELD AT
HOTEL STATLER, CLEVELAND, OHIO.

Thursday, July 6th, 1916—10:00 *A. M.*

Meeting opened with President W. S. Barrows presiding.

President: By virtue of the authority imposed in me as Supreme President of the American Electro-Platers Society, I declare the Fourth Annual Convention of this Society opened for the transaction of such business as may legally come before it. We will now have the list of delegates read.

(List of delegates read by Mr. Fraine.)

Member: I move that the list be amended and stand until the end of the reading, and then the whole list be adopted at that time. (Motion seconded.)

President: Regarding the change in delegates from the Indianapolis Branch, is it agreeable to the convention that the name of Mr. George Burrows be changed to that of Mr. Wright, and the delegates stand, Mr. Osterheit, Mr. Warner and Mr. Wright?

Member: I move that they be accepted.

Motion seconded and carried.

President: On previous occasions the opening session has invariabliy been turned over to the president, or to the branch entertaining the convention. This morning I take particular pleasure in turning the rest of this session over to the congeniaI Mr. Ter Doest, of the Cleveland Branch. (Applause.)

Mr. Ter Doest: Now, gentlemen, as it has been customary at our previous conventions, we will have a self introduction. Each man get up in his turn and mention his name, and the firm he is with, and where he is form. We won't inflict the punishment of asking you your age this time, as we did before, because I know nearly everybody's age, and I don't want you to know mine.

Thereupon each member arose and stated his name and the firm he was connected with.

Motion made that the convention go on record as complimenting the Toronto Branch for its unselfish stand, and that Toronto be given a vote of thanks for working for the entire interest of the American Electro-Platers' Society.

Mr. Fraine: I believe that this Society does owe Toronto Branch a vote of thanks on behalf of their efforts in behalf of the convention this year, and I heartily second that motion that this convention go on record as passing a motion of thanks for the Toronto Branch along that line. (Motion carried.)

Member: On the part of Toronto Branch I wish to extend to the American Electro-Platers' Society our hearty appreciation of this vote of thanks.

Motion made and seconded that all amendments to the constitution that will be offered at this convention be presented not later than tomorrow afternoon, and that as they are presented they

be not voted on, but referred to the constitution committee, to be appointed, and I desire, as mover of that motion, to waive the chairmanship of it.

Mr. Fraine: I move, as an amendment to that motion, that the old committee be discharged.

Member: I will accept the amendment, or withdraw my motion, whichever you desire, and I will support Mr. Fraine's motion.

President: It has been moved by Mr. Fraine, and seconded by Mr. Hogaboom that the constitutional committee of last year be discharged. (Motion withdrawn.)

Mr. Hansjusten: I make a motion that any amendment to the constitution that may be offered, lie on the table until tomorrow morning. (Seconded and carried.)

Mr. Hogaboom: I move that we immediately send a telegram to the president at Washington, that we are willing as American Electro-Platers' Society, in convention at Cleveland, to offer our services to the Government for anything in the line of preparedness that we may be called upon to do. (Second and carried.)

President: I move that Mr. George B. Hogaboom and Mr. Fraine be empowered to send that telegram. (Seconded and carried.)

President: I make a motion that the reports be made the first order of business in the afternoon session. (Seconded and carried.)

(Whereupon the meeting was adjourned until 2:00 p. m.)

Afternoon Session—2:00 P. M.

Thereupon the Secretary read the minutes of the 1915-1916 convention.

Motion made, seconded and carried that the report be accepted as read by the Secretary.

Thereupon the Secretary read the President's report.

Motion made, seconded and carried that the President's report be adopted as read.

Thereupon the report of the First Vice-President was read.

Motion made. second and carried that the report be accepted as read, with thanks.

Thereupon the Secretary's report was read.

Motion made, second and carried that the report be adopted as read, and accepted with great thanks.

Thereupon the Secretary read the Editor's report.

Motion made, seconded and carried that the report be accepted as read, with thanks.

Motion made, seconded and carried that the editor be directed to put his statistics in form so that they can be published in the Monthly Review.

Thereupon the Treasurer's report was read.

Motion made, seconded and carried that the report be referred to the auditing committee.

Thereupon Mr. Fred Liscomb read a paper, entitled "Anodes," and the following discussion had:

Mr. Hogaboom: Mr. President, I would like to ask Mr. Lis-

comb if the solubility of the anode is not more dependant on the melting—on the heating of it—than upon the nickel contents. If an anode is melted at a temperature at which the carbon is not directly combined with the anodes, will not that resist the currents to such an extent as to make it almost insoluble. The solubility depends more upon the casting—upon the heating treatment—upon the way it is casted, and upon the mold it is casted, than upon the purity of it. If you have an anode which has the combined carbon which had such a hard scale on it that the nickel would not be soluble. Therefore the anode would stand up against the solution. If the anode was cast into a mold where it congealed very rapidly, large crystals would form. The larger the crystals the more readily the solubility of the anode; the smaller the crystals the less soluble it is, no matter what may be the nickel contents.

Mr. Liscomb: I believe you are right, although I have no figures on the heat treatment of the anode. That I know very little about, except by hearsay.

Mr. Hogaboom: I would like to say that I saw some anodes that could not be dissolved in an electrolyte under any conditions. They were in there for three months. The purity of those nickel anodes was over 98 per cent analysis, but it was found there was such a hard scale on the outside that it would not dissolve. When that was sand blasted very thoroughly and annealed up to a certain temperature, and allowed to cool, that anode dissolved very readily in the solution.

Mr. Liscomb: I believe you are right. I might say, I have had under observation some nickel anodes that averaged a little over 99 per cent, and then worked in two different types of solution to find out if the solution had any effect on the high percentage anode, and I have only got the experiment partially completed, but I am satisfied that the high percentage anode is not depending on the single salt solution, or one that contains much chloride. The several anodes I had really disintegrated, and the loss was enormous.

Mr. Hogaboom: In the nickel anode of a high nickel contents isn't it a fact that it is so much harder to melt, and that's why it is so much more insoluble, and that where an anode is alloyed with iron or carbon, that that renders it more soft and soluble in the solution, and that is it not the fault of the plater that it is not more soluble, but the fault of the blaster.

Mr. Liscomb: I think you will find your question answered in the paper I read, when you read it carefully. For the benefit of those who have not yet seen those photographs, I might say that the corrosion on that flat anode shows very conclusively the point Mr. Hogaboom is trying to bring out. The long anode there has these large crystals which he speaks about, and that flat one shows conclusively that the anode is hard, or only partially soluble.

Mr. Hogaboom: There is another thing in addition to Mr. Liscomb's paper, which I think would be advisable to read at this time. Mr. Liscomb spoke about pitting of nickel, and I wrote a paper about unsolved problems of the electroplater. Here is a letter I will read: ((Letter read.)

Mr. Liscomb: I believe I am the dad of that thought, and I believe Mr. Sterrett will bear me out. I think 12 or 15 years ago I showed Sterrett something pitted up that way.

Mr. Hawkins: This discussion has rather switched from Mr. Liscomb's paper to pitting. Would it be in order to discuss pitting or ask a question on that line, or would you prefer to stick to Mr. Liscomb's paper at this time.

President: I don't see any objection, and I think it is the wish of those present to proceed.

Mr. Hawkins: What I wish to ask is this: Inasmuch as Mr. Hogaboom makes the statement that very probably they have discovered what causes pitting, I would like to know if there is not a cure for pitting—that is, a positive cure, and before I finish what I have in mind, I would like to say that while I don't know of any positive cure for pitting, yet a plater made a suggestion to me the other day, or rather he told me of his experience, and he is sure he has discovered a means to prevent pitting. His work is very particular, and he told me a week or so ago that he was getting gray headed and staying awake nights on account of pitting. He said: "I feel like jumping the job, and have for some months passed." The other day he said he was up against it. He said he used hot nickel solution. He said he had a barrel of glucose and took a handful of glucose and put it into this hot nickel solution and stirred it up, and he had no trouble for two or three weeks, and when the pitting began again he added some of this glucose, and as far as I am concerned, I have overcome this trouble. I just give that to the society as it was given to me, and I would like to hear further from members as to what they know about pitting and the cure for it.

Mr. Woodmansee: (Addressing Mr. Hogaboom): You made a statement that if they were cooled very rapidly that there would be large crystals and dissolve very readily.

Mr. Hogaboom: I made a mistake: It would cool very slow'y.

Dr. Holler: Right along this line I would like to mention some work we have done on the analysis of nickel electroplating solutions at the Bureau of Standards. I want to call your attention to the important point of the acidity of the solution. We have found that in analyzing a large number of solutions that the analysis of the solutions do not tell how they are going to be made. And particularly is that true in the case of the acidity or neutrality of the solution. We have found that we cannot measure the acidity of the nickel solution accurately enough with any ordinary indicator. If pitting is due to the deposition of hydrogen, then the regulation of that neutrality on the nickel solution is very important. So that there will have to be a method devised for determining the exact acidity of a nickel solution, and keeping it uniform. I think it is possibly the important point to be kept in mind there, and we have in mind the determination of the exact acidity of various nickel solutions in order to determine what the acidity will be, or at what point hydrogen will be involved, and at what acidity that will occur. I just wanted to call your attention to that. The analysis

does not disclose anything, but the neutrality seems to be the important point.

Mr. Hogaboom: Bennett, Kennedy and Douglas, in a paper presented before the American Chemical Society in 1914, found if there was an alkaline film at the catnode due to having a solution at the proper acidity, that the rate of deposition was much more rapid, and there was a less tendency to pit. But if the solution became acid, there was then a great tendency to pit, and the efficiency of the solution was lost. In the American Hardware Corporation, where Mr. J. C. Andrews is Chief Chemist, there is quite a little work done on a nickel solution, and all the indicators for finding the acidity of a nickel solution were found to be of no avail. I have written to every man whom I knew anything at all about on the analysis of nickel solutions in which a weaker acid was used, and so far failed to receive a reply from anyone as to how to exactly analyze such a solution. I have read and hunted up all the literature on the subject.

Mr. Shepard: Isn't it a fact that the weaker acid acts as a base to counteract the solution?

Mr. Hogaboom: Yes, to a great extent. But where the efficiency depends on the acidity then you must know what the contents of the stronger acid are.

Mr. Shepard: What good does it do you to find out what the weaker acid is? Isn't it that the presence of the weaker acid prevents you from determining the stronger acid, as all the indicators are affected. They form nickel salts with their interfering agents.

Mr. Liscomb: In the line of Mr. Hogaboom's remarks about the alkaline films, that is present to accomplish this condition, I would like to say that I have read several times that it was absolutely necessary to have such an alkaline film. Our very dear friend, Mr. Ed Heil, who is a member of the St. Louis Branch, and has charge of the Coleman Lamp Company in Wichita, Kansas, is running a single salt solution without a trace of any alkali in it. He has no ammonia—nothing but single salts, borac acid and some chloride of nickel, and if anybody can beat Heil's nickel, I would like to see it.

Mr. Ter Doest: In this connection, I would like to say that about ten or twelve years ago we used to run a nickel solution composed of single salts and borac acid at 16 degrees, and I used to run it at ten volts and got a nice deposit. I don't see how there would be any alkaline film in that voltage.

Mr. Servis: I would like to ask Mr. Hogaboom's opinion as to the statement he made regarding the introduction of glucose in this solution. What action would the glucose have on that solution?

Mr. Hogaboom: I am not prepared to say anything about it, although I know I would not add glue.

Mr. Reeves: In regard to the addition of glucose, isn't glucose usually more or less of a nonconductor. I believe that has sometimes been used in zinc deposit baths to render the bath less conductive, and isn't it also a fact that the pitting troubles arising from the hydrogen gas have been more in evidence of late years

since we have tried to do much more rapid plating, and tried to use higher voltages and greater amperes. And if that is the case, wouldn't it look as though the addition of the glucose has rendered this solution less conductive, and possibly without the knowledge of the operator who used less amperes? Less amperes passed through the liquid and his plating was a little bit slower and therefore had less hydrogen and less pitting.

Mr. Servis: When he mentioned that it is of late years that the pitting seems to occur more than heretofore, I agree with him. I will say, up to a year ago I had very little trouble with pitting. Just possibly a little now and then, but not very much. I then got the idea that I ought to do it just a little faster than the other fellow was doing it, and I operated at about one hundred degrees temperature, and I have had some of the finest specimens of pitting you ever saw. I thought I could run that solution at three and a half or four volts, but I cannot run it beyond two volts without pitting. While the pitting is not very bad, it certainly is greater than it is in the other solutions. When I operate it at eight amperes it pits, and when I operate it at six, it doesn't. When I operate above six I find pitting. I think we are simply trying to do too much, but it doesn't prove the fact in my case. I will state another thing, that that solution was operated absolutely neutral and it pitted. It didn't seem to make any difference how you handled that solution, it pitted just the same.

Mr. Ter Doest: Supplementing Mr. Service's remarks, I would like to say that when I used to operate a solution at one and three-quarters volts I never had pitting, but as soon as I got the speed mania, when I got up to two volts or over, I had my troubles now and then. At one and three-quarter volts, I mean running that solution continuously at one and three-quarters volts; I don't mean running it at six volts now and two then, but six, that solution will never behave like solution run continuously at one and three-quarter volts, it gets that nice soft velvety appearance, which is what every nickel-plater desires; but as soon as you get in the habit of, when you are in a hurry of putting on three or four volts once in a while, you use all the smothness of that deposit. I worked for years in slow solutions, and always had it that way.

Mr. Nagel: I believe some of the remarks that have been brought out there in the last few minutes are getting down to the meat of the matter. I know one plater in Toledo, and I don't believe he has ever had a piece of pitted work today, or any other day, in turning out work on malleable iron, pressed steel—well, he has almost everything. And the secret of his whole success is that he sticks to the old double salt solution with very little additional single salts and does not run his current very high.

Mr. Garland: I wish to state that I am operating a hot nickel solution for the last year. This trouble of pitting I have not run across as yet, because I don't run my solutions so strong in metal. I run it very diluted, and keep up a constant temperature of 158 degrees. Some years ago I found that in plating with the double sulphate nickel that certain work would not pit—the heavier parts.

But the finer cap which is a very light brass, had a tendency to pit on the extreme lower edges of the finer cap. I had a system of wiring which I thought was causing me trouble, so I proceeded to place them on a piece of tin and naturally the upper ones would be saved, and I learned the lesson of putting a couple of blind ones on the end of the string, and the upper ones would not be pitted, and the lower ones would be pitted. Take on the other hand, the heavier base didn't show this pitting, but the finer cap did show it. I am operating a hot nickel solution. No doubt many people say, "What is the use of using a hot nickel solution?" I am plating die castings that naturally would have to put on three-quarters of an hour deposit in cold solution, and I haven't had any fail me as yet. The voltage has something to do with it. I run about four square feet to the tank and cover that surface and run 80 amperes to the tank load—that is about 20 amperes to the square foot.

Member: What density did you run that solution at?

Mr. Garland: Six.

Member: What is the metallic contents?

Mr. Garland: About an ounce and a third.

Member: How do you compose your bath?

Mr. Garland: Single nickel salts, borac acid, and manganese of sulphate.

Mr. Shepard: On the pitting the dope on the hydrogen is all right, but you got me when you run your work in the cleaner in cold water you get a film on there that you don't get off with your acid. If you run that in hot water first, you get that off. In taking sheet steel you will get bubbles on there and have pitting.

Mr. Hogaboom: Isn't that due to the soap? Probably in your cleaning there is a soap made, and you congeal your soap. You take any cleaners that have a soap and you should not run it into the hot water because it congeals.

Mr. Wright: I have had the same experience similar to this that the gentleman just mentioned. After passing especially steel and iron work in a sulphuric acid dip, in rinsing off any water you have to get into the sunlight to discern hydrogen bubbles. I have had various lots of work come out occasionally in that condition, and I observed it came from that. It wasn't in the solution at all. I would like to ask this gentleman here whether he meant to say we could not use only five amperes to the square foot to feed the solution. If you went over that the solution would not be fed. There is another question I would like to mention in regard to this pitting. I have been using a single nickel salt solution lately. I got this recipe formerly from another who made it up with four ounces of conducting salts to the gallon. According to my experience, that was too high, and I thought I would start with a half ounce. I started with a half ounce, and I used about 75 amperes to the square foot, and I found I had a pitted surface. I increased my conducting salts to a half ounce more, and used exactly the same current and the pitting disappeared. I came to the conclusion that the conducting salts was the cause of the pitting. I know if you use too much conducting salts you will have work not pit, but

peel. So you are between the deep sea and the devil. That is my experience, but it seems to me you must keep your conducting salts low. I am hot for single salts because I find a deposit from single salts far superior to that from double salts. You can buff it with almost as little work as you can silver. I can remember when we plated silver work. Work that we do in one hour now used to take four hours then. Now, we are not going to drop back on that, nor I don't believe we are going to drop back on our rapidity of plating nickel. I find a deposit on nickel deposited quickly, accurately, and well, is a better deposit.

Mr. Osterheit: Back in the bicycle days I worked for a man by the name of Mr. Card. He had charge of the Waverly Bicycle Works, and he ran his solutions with just as much metal as they would take up. In other words, he always kept from three or six ounces of double salts in the bottom of his tank. That, in addition to borac acid and carbonated nickel. It was a crime with that man if we were to take out of the tank under three hours. We had a man especially to go from one tank to another and agitate those cathode rods. Human agency is liable to forget. If those cathode rods were not agitated at regular intervals the work would pit and sometimes you could almost see through the deposit because the pits were so deep. We would plate it so long that it would come out a stone gray almost, and would be cut down on a 14-inch wheel. Now, some of that work is standing yet. Nevertheless it pitted if the cathode rod was not agitated at regular intervals. In regard to the cleaning or dipping previous to entering the bath, I will say that we scrubbed the work in those days, and rinsed it, and it passed through the hands of two inspectors before going into the nickel bath, and I am quite sure there was nothing in the way of hydrogen bubbles before it entered the bath.

KEEP ON SMILING.

By the Editor.

Start the day with a laugh and the morn with a smile,
With a jovial grin of good cheer.
'Tis astonishing how that day's work will slip by
And troubles will all disappear.
Be glad of the sunshine or glad of the rain,
Let every day be a thanksgiving
And be glad that we've got no war in this land,
This good U. S. land where we're living.
If your work never peels why you just ought to laugh,
Every darn thing that happens is funny.
If you stick on the pay roll be tickeled to death
And glad that you get so much money.
If your plating is all coming out nice and bright
You surely had ought to be jolly.
If your polishers are turning each day's work out right,
Why how can you be menalcholy.
If you meet a poor plater with woe on his face,
Just tell him about us gloom haters.
We mix science with fun and equations with smiles,
Us American Electro Platers.

BRIGHT NICKEL PLATING.

H. J. Ter Doest, Cleveland Branch.

By bright nickel plating I mean a deposit of nickel bright enough not to require any buffing after plating, no matter what the quality may be that is required, as we all know, work that did not require the very high finish of quality has always been done in that way and is nothing new.

When considering the advisability of doing work in this way, there are a lot of factors to be considered. Several of which are: First, is it practical to do the work in hand this way? Second, will it pay to do the work this way? Third, will it retard or facilitate the work by doing it this way? Fourth, will the work be as good this way?

Under the first, is it practical to do work this way? We must consider the nature of the work, for if it is iron polished on a wheel it would perhaps not be bright enough, but brightly tumbled iron may be done very well this way, but the practicability of this also depends on how the work is handled after pltaing, for if it is work that is not to be assembled or worked on, perhaps it would be more practical to give it a light buffing than to keep the water marks oft, as I have found it quite unpractical to take work out of a solution and have it dry out so as to not need any wiping up, and this wiping up may cost more than the nickel buffing, depending of course on the nature of the work, but if the work is to be handled or worked on, other than wrapping, this water stain is neglible for as the finger marks have to be taken care of anyway the water stains goes along with that. Again, if the pieces are very large it is quite a difficult matter to keep them bright before plating, and as it is not very often desirable to deposit enough nickel to cover scratches or stains this way, make it quite impractical.

Small brass pieces are the most practical to do this way, and tin work may be considered quite impractical, as the cleaning would be too expensive if you desire your nickel to stick.

Now as to the second factor, will it pay? There are a good many who think that all there is to it, is to neglect the nickel buffing after plating, and of course it pays. This again depends on the quality of work desired, for if the finish is to be a very good one, the cost will at least equal that of doing the work the other way, and perhaps exceed it, for the work will have to have a higher color before plating, and will have to be handled more careful in the wiring, cleaning and plating, also in the unwiring or racking, as the case may be, as every scratch from handling will show. While in the old way the nickel buffing takes care of most of the scratches caused by handling, and consequently will cost as much or more, but with the advantage of a better grade of work in half the time plating, as in that time you will find you have a better plate than under the old system, where the buffer leaves the least nickel on the high lights where by this method the most nickel will be on the high lights or the parts that are subject to the greatest wear, and it is also whiter than when buffed, as none of the

white is filled up with buffing composition to make the general appearance of the whole darker; besides, in some cases doing away with washing the work after buffing.

Hand finished work cannot be done any other way very good, but requires a great deal of care in handling and cleaning, and I will state that I have not found any way to clean this work without scrubbing with a brush. Although only water is used to scrub with, it may look perfectly clean when run through the electric cleaner or through the potash and cyanide, it will show up cloudy if not brushed and will not have that bright, clear look, so much desired in this class of work.

The third factor, will it retard or facilitate your work? is a very important one, as a delay of one or two days may be avoided by this method, and is so much desired in a good many places that they would stand a little added cost in order to get the benefit of this one thing.

Now as to the solution to use for this work, I think most any high speed solution will do. I have used a solution made up of ten parts single salts, two parts boracic acid, one part salt, dissolved in hot water until it stand 10 or 10½ degrees on the Beaume Hydrometer when cold, but here again, you have an added expense for solution, but the same work can be done in a double salts solution with two ounces of boracic acid added to each gallon. Now while the first solution will cover up some buff marks if plated heavy enough, as the work actually gets brighter in this solution. I have used this solution on basket work, with baskets that had been used for some time, and were very rough or burnt, and they actually got bright after using for some time in this solution.

While the double salts solution with boracic acid does not seem to do this, as the work does not seem to get brighter than when put in, still when working it day after day it always seems to have that same white appearance that is hard to maintain in the single salts solution.

All the bright nickel work in my exhibit was done in the double salts solution.

By The Editor.

Herr Dubelbeis made a copper clean, one of the dandiest kind,
It cleaned the cathodes up in front and cleaned them up behind,
It cleaned them just as good as new; it made the nickel stick.
That nickel could be put on thin or put on extra thick,
And where the dirt and grease was thick; this story is no whopper.
It took that grease all off right sleek, and put instead some copper.
He read how Oscar Servis done and thought he'd do it too,
And sure enough it cleans and plates like Oscar said 'twould do.
It surely does make awful fumes, but Harry on that dotes,
Far down in Luxemburg he lives, where all the folks keep goats.
The plating hooks get awful hot, in hardly any time,
For that tank lets the amperes up, like buffers use up lime.
But Harry is a jovial soul and minds that not one jot,
For whether wienermurst or dogs he likes them to come hot.
He is going to write about it in the A. E. S. Review,
So all you blokes that don't know how can go and do it too.

THE ADVANTAGES OF USING A VOLTMETER IN THE PLATING ROOM.

By ALBERT J. LEMRISE, Secretary Providence Branch.

The modern electro-plater without a voltmeter is probably as badly off as a pilot without a compass, and, although its use is nearly universal, we still find electro-platers either prejudiced against its use or manufacturers too blind to see the necessity of acquiring one.

What is a voltmeter? In what way is it so important in the plating room? These are the two questions I will try and answer in a few remarks.

A voltmeter is an instrument designed for the measurement of the voltage or electro-motive force of an electrical generator.

The volt, or electro-motive force, as all platers know, is an all important factor in the plating room, for, outside of a few very light deposits by immersion, where only a weak current is required and developed in the solution, it is in constant use.

These facts being too well known to discuss here, let us talk about the importance of this little measuring instrument.

Of all trades, I think, none have required more skill in guessing than the electro-plater's. What would you think of a doctor guessing at the kind of drug to prescribe for a certain disease; of a druggist guessing at the weight in filling a prescription; of a weather prophet guessing at the temperature, etc; down to the coal-heaver guessing at the amount of coal to fill your order? No doubt you would say it is too ridiculous to think about. Well, then, why should a plater be a better guesser than the others? Has he had a special course in guessing? Is it part of his work, or is he not supposed to know? How can he know if his solution is not depositing too slowly or too fast? Or if his dynamo is in perfect order? Will everything always work well just because he has no way of measuring the current? We all know better, for we have all had dynamo troubles, and many a time has the solution been blamed, doctored and even ruined on account of a defective or troublesome dynamo. Had the same plater had a voltmeter, Mr. Dynamo would have been looked after, and the plater avoided a call-down for slow or imperfect work. There are still platers prejudiced against the use of that instrument, but no doubt they are in the minority. Skepticism in this case simply spells ignorance, or a loose spring in the top story.

Many of them have a so-called voltmeter in the form of an ordinary file, which they take pleasure in rubbing up and down, connecting thus the anode and cathode, making sparks fly in all directions, and in this manner drawing to their attention the other employee, who, gazing upon them in astonishment and admiration, exclaims, "What a wizard!" Now look at the commutator on the wizard's dynamo. See the scratches his rubbing has brought on, and if the machine has been in use for some time watch the brushes, spark, etc. The wizard is simply an ignorant plater, who can tell just the amount of current his dynamo is producing by the rubbing of a file. If his dynamo is defective, he blames it to

the drugs. If the work is burned on by the current unexpectedly rising, when the wizard was not watching, he blames it to the heat or the cold, cheap drugs, bad water, etc., to everything but the right cause, the dynamo.

The manufacturer who refuses to see the necessity of supplying his plater with one is still worse than the plater, for in this instance he is the loser, and in some cases a heavy loser, by his obstinacy.

The voltmeter is the plater's best friend in the plating room. It is always on the job. If the dynamo is not producing enough, or too much current; if the brushes are sparking; if the current is ground; if the belt is slipping, etc., look at the voltmeter, and know the truth. No more guesswork.

THE METHOD FOLLOWED BY THE TOLEDO BRANCH CLASS IN CHEMISTRY.

By Jas. B. Nagle.

When we organized the class last year we started with nine members and as we wanted to get the instruction most necessary to our particular line of work without taking a complete course in chemistry it was necessary that a special course be arranged to suit our needs.

Our instructor, Dr. Kreider, considered this very thoroughly and he decided that while we could skip the elementary chemistry still it was necessary that we understand qualitative analysis before attempting any tests on solutions.

As a result we began on the qualitative, using Segerblow's Manual, and while none of the class understood chemical symbols and formulas and for the first month we mixed them up pretty well, still coming in contact with the different symbols and formulas in all of our work in the laboratory we soon began to understand and absorb them without any extra effort or study.

Now as the regular course in chemistry consists of numerous lectures outside of the laboratory work and for a student to understand and appreciate the lectures requires a close application to the studies as well as a retentive memory, when a man gets along in years as the most of our class have, you don't acquire book learning as easily as we did in our school days. The reason for this is, we have too many other things on our minds to be able to concentrate on any particular study.

Realizing this, Dr. Kreider decided that we would gather more by actual experience in the laboratory and he made his lectures very informal. Whenever he saw we were weak on any particular experiment he would take that subject and lecture on it, occasionally he reviewed the work we had gone through. In this way we went through the course in qualitative in very good time, and if we had gone no further in our studies than this it was worth all our time and study we put in on it, as we thereby learned the constituents of the different chemicals that we use daily and we also learned the reactions that take place when different chemicals are combined and this is a great help to anyone engaged in our line of work.

But we did not stop there, as we went on into the quantitative, which we are at present working on. We are using the different methods of analysis and we have done some very good work to date testing the different solutions for their constituents, and while we are not far enough advanced to voice an opinion as to the best methods for shop practice, still we are getting there and hope to some day contribute something along this line.

The class meets two nights a week and we work from 7:30 to 10, and often later. This is doing pretty well for a class of men who are as busy throughout the day as the average plater. It is pretty hard to give up this much of a man's spare time, but we are after the knowledge and this is the only way we know of to get it.

We have a pretty well equipped laboratory at the Toledo University and our instructor has taken a deep interest in the work of the class. This is the main reason we have advanced as well as we have. We have certainly had him busy at times straightening out some of the tangles we have gotten into.

The members of the class are at present making arrangements to have the necessary apparatus for analysis installed in their respective places of employment and this will be a great help to each one of us to be able to apply to our daily work that which we are learning in the laboratory, and this will be a step towards the goal for which we are reaching—efficiency.

In conclusion, I wish to say that gathered from the experience of Toledo branch that wherever it is possible the members of A. E. S. will reap a great deal of benefit by taking up chemistry, even though it takes considerable spare time.

HAMLET ON SCRUBBING.

By THE EDITOR.

To scrub or not to scrub, that is the question,
Whether it is better to suffer the endless tiresome work that flesh is heir to,
Or to take arms against a sea of cleaning expenses.
To have peeled work. Ah, there's the rub,
For when we shuffle off and discard our scrubbers
New troubles that we wot not of, we may encounter.
Yet know we not what troubles we've endured,
The scrubber's hands, all eaten up with caustics,
The castings with the polish all removen,
The daily output lessened by the labor,
The empty tanks all waiting for the scrubbers,
With toilsome slow and tedious endeavors
To clean the cathodes these same tanks do yawn for.
So may we not take arms against these troubles
And chain the lightning down to do our bidding
And make it work perforce while we are resting,
So that we may purchance convert to good and proper usage
The middle syllable of Boracic Acid
That now does seem so useless.

BRONZE PLATING BATH.

By F. W. Matts, Jr., Newark Branch.

A bronze plating bath for flash deposit. Have the following stock solutions made and ready for use at all times:

First—Red sulphide of copper, 1 part; cyanide of potassium, 2 parts; dissolved in warm water, not permitting it to boil. This operation is not always a pleasant one, as the copper throws off a sulphurous gas.

Second—Carbonate of zinc, 1 part; cyanide of potassium, 1½ parts dissolved in hot water.

Use about equal parts of the above stock solutions, in making a new bath or replenishing an old one, as the case may require.

A new bath should not stand over three degrees (Baume). After the bath is made heat to near boiling point and stir well. Now is the time the plater's skill is tried, as the temperature of the solution and the rheostat are the means by which the plate is to obtain the color desired.

The temperature should range from 90 to 110 degrees, and the voltage from ½ volt to 3½ volts, according to class of work.

If the solution should plate slow metal should be added. If added during the day the stock solutions should be placed in a wooden pail and heated to near boiling with the aid of an open steam pipe. This can be used immediately and added to the bath. One pound of metal is sufficient for a 200-gallon bath. Cyanide should be added from time to time, but only enough to keep anodes clear, as too much free cyanide will hamper the plater in obtaining the desired color.

BRONZE SOLUTION.

To each gallon of water use the following: Carbonate copper, 3 ounces; carbonate of zinc, 1 ounce; cyanide, 8 ounces.

Dissolve in warm water, taking care that copper and zinc are all dissolved and the solution quite clear; boil for about a half hour, and upon cooling solution is ready for use. Red or yellow bronze may be obtained in this solution according to temperature used; 110 degrees gives a good rich bronze color and a heavy deposit. About eight to ten minutes is sufficient to stand coloring.

BE AN OPTIMIST.

For an optimist is one who makes the best of it when he gets the worst of it.

Gloom peddlers soon fall beneath the weight of their own packs; be a live one.

What were your troubles of a year ago? You don't remember; then forget today's.

Lost, yesterday, somewhere between sunrise and sunset, two golden hours, each set with sixty diamond minutes. No reward is offered, for they are gone forever.

Only the things you do live after you. How long they live depends on how well you do them.

WHAT THE BRANCHES ARE DOING

CLEVELAND.

Meets once a month at American House. Secretary, Charles Werft, 1775 East Sixty-eighth Street, Cleveland.

The first meeting of the Cleveland Branch in their new laboratory was held July 29th. The gas company failing us, we resorted to candles and with the aid of the shining lights of the Cleveland Branch to the number of 20, we had sufficient light to transact business. The honor of having been the first to soil his hands in our laboratory goes to Mr. E. W. Hale, Akron, Ohio, who closed the windows after the meeting.

Seven applications for membership were read and referred to the Board of Managers.

The first actual work in the laboratory will be August 26th.

ST. LOUIS.

Meets third Saturday of each month at Public Library Assembly Rooms. Secretary, F. C. Rushton, 4405 Blair Avenue, St. Louis, Mo.

The regular monthly meeting of the St. Louis Branch was held July 15th.

The delegates to the Cleveland convention reported that the 1917 convention would be held in St. Louis.

Mr. Musick, as librarian for the ensuing year, promised to have something of interest at every meeting and eleven members promised to furnish a paper.

It was voted to hold the August meeting in Belleville.

Mr. Williams was congratulated upon his election to Supreme President, all members feeling he was entitled to that honor for his consistent and unselfish work in the past.

CHICAGO.

Meets fourth Saturday of each month, 8 p. m., Western Building, Randolph Street and Michigan Avenue. Secretary, Oscar E. Servis, 3020 George Street, Chicago, Ill.

The regular monthly meeting was held July 22nd.

Vice President H. Gilbertson, presiding, although the extreme warm weather kept some away, we had a fair attendance.

Mr. Jos. Bernath was granted a transfer to the New York Branch.

Mr. Arthur Stringer presented the Chicago Branch with a beautiful gavel, which was highly appreciated by the officers and members.

Our well known Herbert J. Hawkins proved to be a visitor, and gave a short talk on what he had observed at the Cleveland convention. The Past, Present and Future have been revealed to

him at that meeting and had also made a deep impression upon him. We always enjoy Mr. Hawkins' company.

Divers questions and answers were made, prominent among which were:

How to precipitate zinc from a brass solution by some simple method. This was discussed at random, Mr. F. Liscomb finally giving a short lecture on same and concluding by stating that the Sulphuret Hydrogen gas was, he believed, about the best method.

BRIDGEPORT.

Meets third Friday of each month at the office of the Brass World, 260 John Street, Bridgeport, Conn. Secretary, Nelson Barnard, 858 Howard Ave., Bridgeport, Conn.

The regular meeting of our branch for July was held last Friday evening. There were 26 members present. The matter of an outing was taken up and was decided that we go to Dorlores Point on Saturday, August 12th, for a general good time and shore dinner.

INDIANAPOLIS.

Indianapolis Branch meets second Saturday in month at Hotel Denison. Secretary, L. Mertz, 1725 Union Street.

Our regular meeting was postponed from July 8th to the 15th.

Meeting called to order by Pres. Aufderheide.

Report of delegates to convention received and members were pleased to hear of it being so successful.

Secretary instructed to get a copy of the Smith-Hughs bill so that we will be informed.

NEW YORK.

Meets second and fourth Friday each month. Secretary, Frederick Haushalter, 82 Hull St., Brooklyn, N. Y.

The regular and semi-monthly meetings were held at their rooms and the meetings were quite well attended considering the warm weather we are having at present. There is quite a lively interest being displayed at present by the members of this branch, thanks to the hustling and hard-working chairman of our laboratory committee, Mr. Voss, who intends to have every member of the New York Branch read a paper at the meeting about the kind of work he is doing at the present time or has been doing in the past. We believe that something of this kind will draw the members closer together and will also be both interesting and instructive.

PHILADELPHIA.

Meets first Friday of each month in the Harrison Laboratory Building, University of Pennsylvania, 34th and Spruce Streets Secretary, Philip Uhl, 2432 North 29th Street, Philadelphia.

Philadelphia Branch held its regular monthly meeting Friday, August 4th.

A good attendance was present and enjoyed a profitable even-

ing. Mr. Harry Seaser, delegate to the recent convention, made his report in which he spoke of the grand success in every way of the convention, also urging the members to exhibit samples of their work at the next convention.

Remarks from H. B. Farrand, who weighs about 300 pounds, and as jolly as he is big, invited the members to visit his plant at Sellersville, Pa., was well appreciated by the members.

TORONTO.

Meets fourth Tuesday of each month at Occident Hall, Bathurst and Queen Streets. Secretary, Ernest Coles, P. O. Box 5, Coleman P. O., Toronto, Ont.

The regular meeting of the Toronto Branch was held on Thursday, July 27th, with President Salmon presiding over an excellent attendance. The delegates' report of the convention was made and claimed the members attention for a good part of the evening. General satisfaction was expressed at the various amendments, etc., and particularly at the fact that we seem to be in a fair way of at last obtaining and up to date constitution. Toronto Branch obtained two applications for membership at the Cleveland convention. A discussion on plating room propositions and problems generally, brought a successful meeting to a close.

DETROIT.

Meets first Tuesday of each month at 26 East Congress Street. Secretary, B. E. Miller, 543 Townsend Avenue, Detroit, Mich.

The regular meeting of Aug. 1st, 1916, was called to order with Pres. Brickway in the chair.

Owing to the excessive hot weather and vacations which some of the members are taking advantage of the attendance was small; however, those being present enjoyed the talk and discussions upon the Electro-Galvanizing of Tubes.

What causes the tubes to plate heavier in the center than on the ends? Because the racks being used over and over again leave a shadow. But why should the rack leave a shadow? This question is open for further discussion. The question of electro galvanizing and using it as a base before nickel plating was taken up. Is it practical to nickel plate upon galvanizing? There was no reason given why it could not be done, but from all reports it is being done successfully. For four months or more we had missed Dad, but at last he did return with a smile and a candidate he did bring.

DAYTON.

Meets first Wednesday of each month at the Y. M. C. A., Dayton, Ohio, Secretary, Alphonz Lamourcux, 500 East First Street, Dayton, Ohio.

MILWAUKEE BRANCH.

Meets first Friday of each month at West Side Bank Building, Third and Chestnut Streets. Secretary, E. C. Yaeger, 962 Ninth Street, Milwaukee, Wis.

NEWARK.

Meets first and third Friday of each month, 8 p. m., 47 Bank Street, Newark, N. J. Secretary, Geo. Reuter, Jr., 333 S. 19th

PROVIDENCE.

Meets second and fourth Wednesday of each month at No. 60 Weybosset Street. Secretary, Albert J. Lemrise, 124 Waverly Street, Providence, R. I.

CINCINNATI.

Meets once each month at Dennison Hotel, Cincinnati, Ohio. Secretary, F. H. Nordmann, 720 Froom Ave., Cincinnati, Ohio.

TOLEDO BRANCH.

Meets the last Tuesday of each month at Toledo University. Secretary, James E. Nagle, 209 Navarre Ave., Toledo, Ohio.

ROCHESTER.

Meets second and fourth Friday of each month at University of Rochester. Secretary, C. V. Haring, 603 Dewey Avenue, Ro-

APPLICATIONS FOR MEMBERSHIP.

Detroit Branch.

S. S. Hamilton ..... 276 Lysander St., Detroit

Milwaukee Branch.

John Hoch ..... 310 Galena St., Milwaukee
John G. Klein ..... 370 Eighteenth St., Milwaukee

Cleveland Branch.

Robert Haska ..... 9920 Elwell Ave., Cleveland, O.
Nathan Hartman ..... 307 Beaumont St., Cleveland, O.
W. H. Schulty ..... 1779 E. Forty-fifth St., Cleveland, O.
Chas. J. Smith ..... 121 East St. Clair St., Cleveland, O.
Louis T. Maguy ..... 1514 Cleveland Ave., Cleveland, O.
W. W. Linfoot ..... 91 Benedict Ave., Norwalk, O.
A. J. Thomas ..... 3207 W. 97th St., Cleveland, O.

New Syracuse Branch.

Harry A. Taylor ..... 229 Sabine St., Syracuse, N. Y.
H. S. Daggett ..... 219 W. Castle St., Syracuse, N. Y.
Philip Murray ..... 450 Gifford St., Syracuse, N. Y.
Martin Cream ..... 109 Court St., Syracuse, N. Y.
Ernest W. Norton ..... East Syracuse, N. Y.
Wm. A. Schuler ..... No Address Given
Harry D. Sanford ..... 400 Prospect Ave., Syracuse, N. Y.
A. F. Norgren ..... 1505 So. Geddes St., Syracuse, N. Y.
Wm. A. Throop ..... 229 W. Ostrander Ave., Syracuse, N. Y.
Jacob Doehner ..... 619 Kirkpatrick St., Syracuse, N. Y.
Frank B. Lyman ..... 731 Otisco St., Syracuse, N. Y.
Horace G. Gravelle ..... 118 Lincoln Ave., Syracuse, N. Y.

Chicago Branch.

H. G. Stephan ..... 932 South Leavitt St., Chicago, Ill.

ELECTED TO MEMBERSHIP.

Chicago Branch.

H. E. Stephan ..... 932 S. Leavitt St., Chicago, Ill.
John C. Tobinski ..... 3222 Mt. Lawndale Ave., Chicago, Ill.

Philadelphia Branch.

W. G. Rogers ..... 366 W. Hanover St., Pottstown, Pa.
Paul Garling ..... 3909 N. Delhi St., Philadelphia, Pa.

Detroit Branch.

Frank Powers ..... Sarnia, Ont.
J. C. Miller ..... 114 W. Valley Ave., Grand Rapids, Mich.
John C. Miller ..... 114 N. Valley Av., Detroit, Mich.
Martin Sternpin ..... 1432 Central Av., Detroit, Mich.
A. S. Burrows ..... 382 Hulburt Av., Detroit, Mich.
A. D. Cowperthwait ..... care the Edmund Jones Co., Detroit, Mich.

Providence Branch.

Cornelius O'Connor ..... 37 Evergreen St., Providence, R. I.
Fred P. Scott ..... 44 Borden St., Providence, R. I.
Christopher W. O'Brien ..... 44 Borden St., Providence, R. I.
John T. McDonugh ..... 16 Prairie Av., Providence, R. I.
Wm. Riley ..... 64 Eddy St., North Attleboro, Mass.
Jas. F. Flynn ..... 127 Atlantic Av., Lakewood, R. I.

Rochester Branch.

Charles Feltz ..... 403 South Av., Rochester, N. Y.
Chas. N. Dunavan ..... 36 Waswic Av., Rochester, N. Y.

Cleveland Branch.

Albert Schultz ..... 1649 E. Thirty-eighth St., Cleveland, O.
Bert McClain ..... care Cleveland Foundry Co., Cleveland, O.
Fred L. Greenwald ..... 16015 Park Grove Av., Cleveland, O.

Toronto Branch.

Arthur L. Chiltern ..... 1112 Dovercourt Rd., Toronto, Ont.
J. A. Blaxall ..... 1672 St. Urbain St., Toronto, Ont.
Albert T. Davey ..... 451 Montrose Av., Toronto, Ont.
John H. Collins ..... 175 Geoffrey St., Toronto, Ont.

Toledo Branch.

W. W. Walker ..... 411 Third St., Toledo, O.
D. P. Ryan ..... 1944 Broadway, Toledo, O.
John M. Doolin ..... 1357 Prospect Av., Toledo, O.

Newark Branch.

Herbert B. Church ..... care Consolidated Safety Pin Co., Bloomfield, N. J.
Herman Ruhlmann ..... 903 Garden St., Hoboken, N. J.

Milwaukee Branch.

John G. Klein ..... 376 E. Eighteenth St., Milwaukee, Wis.

Bridgeport Branch.

Jas. F. Spaine ..... 391 Catherine St., Bridgeport, Conn.
W. E. Roche ..... 1639 Park Av., Bridgeport, Conn.
John Rall ..... 65 Liberty St., Bridgeport, Conn.
John E. Morse ..... 518 Ferry St., New Haven, Conn.
Chas. L. Newill ..... 1214 N. Main St., Waterbury, Conn.
Harold R. Fray ..... Woolson St., Watertown, Conn.

CHANGE OF ADDRESS.

A. O. Worberg.....3642 Mt. Albany Ave., Chicago, Ill.
Gus Jellinck.....5320 West 24th Place, Cicero, Ill.
Fred Hummer has transferred from Milwaukee to Chicago.

MILWAUKEE BRANCH.

Suspended: H. T. Telgenhauer and Chas. E. Johnson.
Resigned: Martin Stark.

THINGS NOT DONE BEFORE.

"The things that haven't been done before,
Those are the things to try.
Columbus dreamed of an unknown shore
At the rim of the far-flung sky,
And his heart was bold and his faith was strong
As he ventured with dangers new,
And he paid no heed to the jeering throng
Or the fears of a doubting crew.

"The many who follow the beaten track
With guideposts on the way;
They live, and have lived for ages back
With a chart for every day.
Someone has told them it's safe to go
On the road he has traveled o'er,
And all that they ever strive to know,
Are the things that were known before .

"The few strike out without map or chart
Where never a man has been;
From the bearen paths they drawn apart,
To see what no man has seen.
There are deeds they hunger alone to do—
Though battered and bruised and sore;
They blaze the path for the many who
Do nothing not done before.

"The things that haven't been done before
Are the tasks worth while today;
Are you one of the flock that follows, or
Are you one that shall lead the way?
Are you one of the timid souls that quail
At the jeers of a doubting crew,
Or dare you, whether you win or fail,
Strike out for a goal that's new?"

It takes more than a hat to make a Master.

Our mistakes may add to the wisdom of others.

That "the wooden shingle is a crime," say the fire preventioners. And when a small boy, we fully agreed with them.